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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/663,042	09/16/2003	Dmitri A. Pissarnitski	CN01538K1	1677
24265	7590	01/17/2006	EXAMINER	
SCHERING-PLOUGH CORPORATION PATENT DEPARTMENT (K-6-1, 1990) 2000 GALLOPING HILL ROAD KENILWORTH, NJ 07033-0530			WARD, PAUL V	
			ART UNIT	PAPER NUMBER
			1624	

DATE MAILED: 01/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/663,042	PISSARNITSKI ET AL.	
	Examiner	Art Unit	
	PAUL V. WARD	1623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 August 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 and 15-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-11, 20 and 26-31 is/are allowed.
- 6) ☒ Claim(s) 15-19 and 21-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|-----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

STATUS: The previous Office Action, dated November 14, 2005, has been withdrawn and replaced by this Office Action. Applicant is expected to respond to each and every ground of rejection set forth herein below.

Response to Arguments Regarding

Claim Rejections - 35 USC § 101

1. The rejections, of claims 1-11, 15, 20, 21 and 26-31, have been overcome by Applicant's amendment and Terminal Disclaimer in the reply filed August 17, 2005.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 15-19, 21-25 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claims contains subject matter, which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention without undue experimentation.

Claims 15 and 21 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claims are directed to a pharmaceutical composition comprising the claimed compounds. The claims are rejected for lack of

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enablement because there is an insufficient teaching of how to use the claimed compositions as claimed. The term "pharmaceutical composition" specifies that at least some therapeutic benefit arise from some property of the composition. However, Applicant has not taught how to use the compounds of the invention to therapeutic effect for any condition.

Claims 16-19 and 22-25 are directed to a method of treating neurodegenerative diseases, Alzheimer's disease, inhibiting gamma secretase and deposition of beta amyloid protein. The terms are interpreted to include any and all forms of gamma secretase and beta amyloid proteins and neurodegenerative diseases. In light of this, it can be asserted that in spite of the vast expenditure of human and capital resources in recent years, no one drug has been found which is effective in treating all types of neurodegenerative diseases, Alzheimer's disease, inhibiting gamma secretase and deposition of beta amyloid protein. In re Hozumi, 226 USPQ 353 (ComrPats 1985).

The determination that "undue experimentation" would have been needed to make and use the claimed invention is not a single, simple factual determination. Rather, it is a conclusion reached by weighing all the above noted factual considerations. In re Wands, 858 F.2d at 737, 8 USPQ2d at 1404.

There are many factors to be considered when determining whether there is sufficient evidence to support a determination that a disclosure does not satisfy the enablement requirement and whether any necessary experimentation is "undue".

These factors include, but are not limited to:

- (A) The breadth of the claims;
- (B) The nature of the invention;

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- (C) The state of the prior art;
- (D) The level of one of ordinary skill;
- (E) The level of predictability in the art;
- (F) The amount of direction provided by the inventor;
- (G) The existence of working examples; and
- (H) The quantity of experimentation needed to make or use the invention based on the content of the disclosure.

The breadth of the claims

The breadth of the instant claims is seen to encompass methods for treating of treating neurodegenerative diseases, Alzheimer's disease, inhibiting gamma secretase and deposition of beta amyloid protein by administering to a patient in need of such treatment a therapeutically effective amount of the compound claim. Applicant failed to exactly defined what types of neurodegenerative diseases, Alzheimer's disease, inhibiting gamma secretase and deposition of beta amyloid protein are treated. Thus, claims 16-19 and 22-25 are extremely broad.

The nature of the invention

The nature of the invention is the treatment of Alzheimer's and neurodegenerative diseases through the use of the claimed compound and derivatives thereof. Currently, there are no known agents that treat Alzheimer's and neurodegenerative diseases all inclusively.

The level of predictability in the art

The treatment of Alhzeimers and neurodegenerative diseases is highly unpredictable. It is well established that "the scope of enablement varies inversely with the degree of unpredictability of the factors involved," and physiological activity is

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generally considered to be an unpredictable factor. See *In re Fisher*, 427 F.2d 833, 839, 166 USPQ 18, 24 (CCPA 1970).

The amount of direction provided by the inventor.

The applicant has not demonstrated sufficient guidance provided in the form of administration profiles, combination ratios of the active agents or reference to the same in the prior art to provide a skilled artisan with sufficient guidance to practice the instant treatment of Alhzeimers and neurodegenerative diseases claimed. Further, the applicant discloses that an effective amount of the compound will be administered (see specification) without providing any direction other than that the compounds of the invention have a high therapeutic index and follows this with a definition readily found in a basic pharmacology textbook. It should be noted that the therapeutic index of a drug in humans is almost never known and is only determined through clinical experience.

The existence of working examples.

There is not seen in the disclosure, sufficient evidence to support Applicant's claims of treating Alhzeimers and neurodegenerative diseases or inhibit gamma secretase and deposition of beta amyloid protein. A conclusion of lack of enablement means that, based on the evidence regarding each of the above factors, the specification, at the time the application was filed, would not have taught one skilled in the art how to make and/or use the full scope of the claimed invention without undue experimentation. *In re Wright*, 27 USPQ2d 1510 (CAFC). The disclosure does not demonstrate sufficient evidence to support the applicant's claim to the treatment and methods in inhibition. There are not sufficient working examples or data from references

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of the prior art to provide a nexus between those examples and a method of treating Alzhaimers and neurodegenerative diseases, and inhibiting gamma secretase and deposition of beta amyloid protein with the claimed compound.

The level of one of ordinary skill.

The level of skill is that of one with a doctoral understanding of Alzhaimers and neurodegenerative diseases therapeutics. Applicants claim a method of treatment for Alzheimer's disease, this disease is a very hard to treat. The central characteristic of Alzheimer's disease is the deficiency in the level of the neurotransmitter Acetylcholine that plays an important role in memory. Alzheimer's Disease is an extraordinarily difficult disease to treat, and has been the subject of a vast amount of research. Despite an enormous number of different approaches, the skill level in the art is so low relative to the difficulty of task that the only success has come from treatment by compounds such as Acetylcholinesterase inhibitors (Aricept®, Cognex®, Exelon®, and Reminyl®), a property not disclosed in Applicant's compounds.

Furthermore, there is no evidence that the inhibition of amyloid B-peptide production for the treatment of Alzheimer's disease has ever been accomplished. For example, Golde teaches that at least one group has used gamma-secretase inhibitors in an animal model to lower the levels of B-amyloid in the brain and that at lease one gamma-secretase inhibitor has gone to clinical trials. (See J. Clin. Invest. 111:11-18 (2003) at page 13). However, Golde makes clear that the actual treatment of the condition of Alzheimer's based upon inhibition of gamma-secretase is still being developed and that identification of an inhibitor is not enough. Golde also lists several

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problems with regard to undesirable pleiotropic effects that must be addressed prior to development of an actual treatment. (See page 13, col. 2). Applicant's system fails to address the problems of undesirable pleiotropic effects, and thus, it appears that while gamma-secretase may be a viable drug target in the future, considerable future research needs to be done. In view of the Golde reference, Applicant's data is not convincing as to make the production and use of pharmaceutical compositions comprising the recited compounds feasible without undue, un-predictable experimentation.

The quantity of experimentation.

A great deal of experimentation is required. In order for there to be a method of treating Alzheimer's and neurogenerative disorders generally, as claimed by the applicant, it would be necessary to show that a vast range of different types of Alzheimer's and neurodegenerative. Furthermore, direction, in the form of examples, must be shown to determine what an effective dose may be. The references submitted do not demonstrate this. Therefore, one of ordinary skill in the art would require a significant amount of experimentation in order to determine the effective dosage to treat the multitudes of different types of Alhzeimers and neurodegenerative diseases with the claimed compound individually or in combination with other therapeutic agents. Moreover, in view of the level of one of ordinary skill, since the inhibition of A β -peptide production for the treatment of Alzheimer's disease has never been accomplished, no guidance from the success of others is available from this experimentation.

Thus, it can be safely concluded that the instant case fails to provide an enabling disclosure for the treatment of Alhzeimers and neurodegenerative diseases.

Conclusion

The compounds in Claims 1-11, 20, and 26-31 were not found to be obvious nor anticipated by the prior art of record. The prior art does not teach or suggest the presently claimed compounds.

Claims 1-11, 15-31 are pending. Claims 15-19 and 21-25 are rejected. Claims 1-11, 20, and 26-31 are allowed.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to PAUL V WARD whose telephone number is 571-272-2909. The examiner can normally be reached on M-F 8 am to 4 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James O Wilson can be reached on 571-272-0661. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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